

(12) UK Patent Application (19) GB (11) 2 241 735 A (13)
(43) Date of A publication 11.09.1991

(21) Application No 9103029.6

(22) Date of filing 13.02.1991

(30) Priority data

(31) 9003605

(32) 16.02.1990

(33) GB

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(51) INT CL⁶

F16B 7/04

(52) UK CL (Edition K)

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U18 S1759

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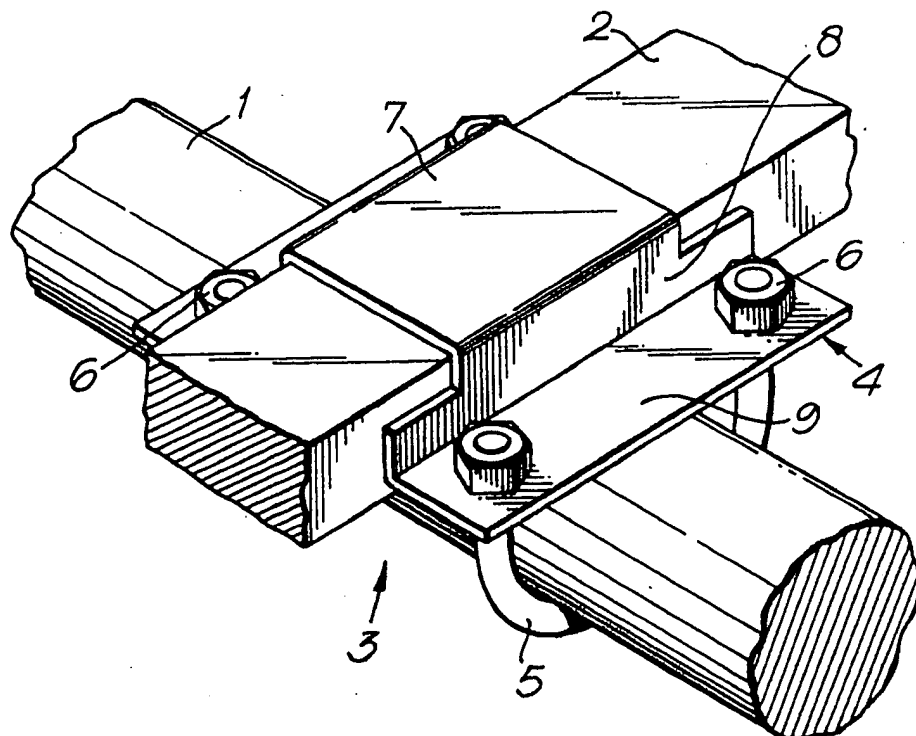
(58) Field of search

UK CL (Edition K) E2A

INT CL⁶ F16B

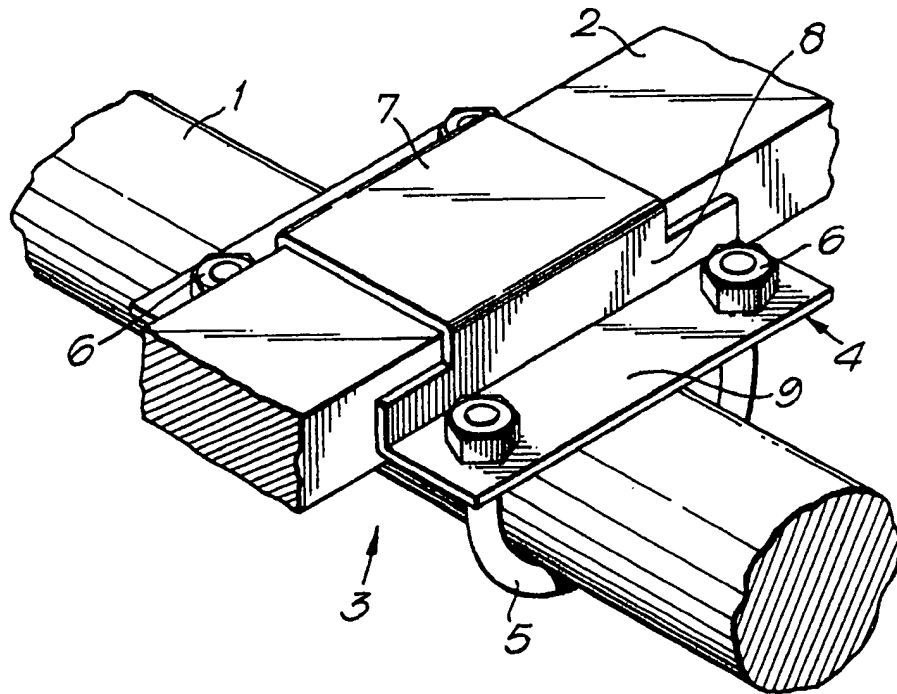
(54) Joints in piling reinforcement

(57) In an improved lattice work cage for use in the formation of a steel reinforced concrete pile, each longitudinally extending steel rod 1 is secured to each steel band 2 extending around the outside of the plurality of rods by fastening means 3 comprising a metal shackle 4 so shaped that it closely overlies the band and two U-bolts 5 which engage around the rod on opposite sides of the band and which are tightly secured to the shackle by nuts 6 screwed on to the shanks of the U-bolts. No part of the U-bolts 5 or the nuts 6 protrudes outwardly of the outer surface of the band 2.



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PILING

This invention relates to piling and is particularly concerned with forming in situ a pile of reinforced concrete.

It is currently common practice to form in situ a
5 pile of reinforced concrete by forming a hole downwardly into the ground, inserting in the hole a lattice work cage prefabricated from rods and other elongate members of metal or metal alloy of high strength, usually steel, the cage having such a transverse cross-section that it
10 is spaced inwardly from the peripheral wall of the hole, introducing cement or a cement mix into the hole until the hole is substantially filled therewith, and permitting or causing the cement or cement mix to set.

In prefabricating lattice work cages for use in
15 the formation of reinforced concrete piles, a plurality of rods of metal or metal alloy of high strength are arranged substantially parallel to one another at spaced positions around the periphery of the cage to be formed and, at each of a plurality of positions spaced along
20 the lengths of the rods, the rods are welded to a band of metal or metal alloy of high strength which extends around the outside of the rods. Prefabrication of a lattice work cage in which the metal rods and metal bands are welded together is time consuming and
25 therefore expensive and it has been proposed that each rod be secured to each band by a separately formed fastening means.

It is an object of the present invention to provide, for use in the formation of a reinforced concrete pile, an improved lattice work cage which can be readily prefabricated and which is substantially less
5 expensive than lattice work cages hitherto proposed and used.

According to the invention, in the improved lattice work cage, each longitudinally extending rod of metal or metal alloy of high strength is secured to each
10 band of metal or metal alloy of high strength extending around the outside of the plurality of rods by a fastening means comprising a shackle which is formed from sheet metal or metal alloy and which is so shaped that it closely overlies the band and two U-bolts which
15 engage around the rod on opposite sides of the band and which are tightly secured to the shackle by nuts screwed on to the shanks of the U-bolts, the arrangement being such that no part of the U-bolts or the nuts protrudes outwardly of the outer surface of the band.

20 Where, as is the usual practice, each metal band is of substantially rectangular transverse cross-section, each shackle preferably is so shaped that it comprises a planar base which bears against the outer surface of the band, two side walls which lie in planes
25 substantially normal to the base and which are so spaced apart that they bear against opposite side faces of the band and, protruding from each side wall in a direction substantially parallel to the base, a flange through holes in which the shanks of one of the two U-bolts protrude and are secured by the nuts.

The invention is further illustrated by a description, by way of example, of the preferred lattice work cage for use in the formation of a reinforced concrete pile, with reference to the accompanying
5 drawing which shows a fragmental pictorial view of the technique employed to secure each rod of the lattice work cage to a band encircling the rods of the cage.

Referring to the drawing, the preferred lattice work cage is prefabricated from a plurality of steel
10 rods 1 which are arranged substantially parallel to one another at spaced positions around the periphery of the cage and, at each of a plurality of positions spaced along the lengths of the rods, a steel band 2 which extends around the outside of the rods and which is
15 secured to each band by separately formed fastening means 3. Each separately formed fastening means 3 comprises a shackle 4 which is made from sheet steel and which is so shaped that it closely overlies the band 2 and two U-bolts 5 which engage around the rod 1 on
20 opposite sides of the band and which are tightly secured to the shackle by nuts 6 screwed on to the shanks of the U-bolts.

As will be seen on referring to the drawing, the shackle 4 comprises a planar base 7 which bears against
25 the outer surface of the band 2, two side walls 8 which lie in planes normal to the base and which are so spaced apart that they bear against opposite side faces of the band and, protruding from each side wall in a direction

4.

parallel to the base, a flange 9 through holes in which the shanks of one of the two U-bolts 5 protrude and are secured by the nuts 6. No part of the U-bolt 5 or the nut 6 protrudes outwardly of the outer surface of the
5 band 2.

Using the improved technique to secure each rod of a lattice work cage to bands encircling the rods, a lattice work cage for use in the manufacture of a pile of reinforced concrete can be prefabricated more quickly
10 and at substantially less expense than techniques of prefabrication hitherto proposed and used.

CLAIMS:

1. For use in the formation of a reinforced concrete pile, a prefabricated lattice work cage comprising a plurality of rods of metal or metal alloy of high strength arranged substantially parallel to one another at spaced positions around the periphery of the cage and, at each of a plurality of positions spaced along the lengths of the rods, a band of metal or metal alloy of high strength which extends around the outside of the rods and is secured to each rod by a separately formed fastening means, wherein the fastening means comprises a shackle which is formed from sheet metal or metal alloy and which is so shaped that it closely overlies the band and two U-bolts which engage around the rod on opposite sides of the band and which are tightly secured to the shackle by nuts screwed on to the shanks of the U-bolts, the arrangement being such that no part of the U-bolts or the nuts protrudes outwardly of the outer surface of the band.
2. A prefabricated lattice work cage as claimed in Claim 1 in which metal band is of substantially rectangular transverse cross-section, wherein each shackle is so shaped that it comprises a planar base which bears against the outer surface of the band, two side walls which lie in planes substantially normal to

the base and which are so spaced apart that they bear against opposite side faces of the band and, protruding from each side wall in a direction substantially parallel to the base, a flange through holes in which the shanks of one of the two U-bolts protrude and are secured by the nuts.

3. A prefabricated lattice work cage as claimed in Claim 1 or 2, wherein the rods, bands and shackles are made of steel.

10 4. For use in the formation of a reinforced concrete pile, a prefabricated lattice work cage substantially as hereinbefore described with reference to and as shown in the accompanying drawing.